American Civil Engineers' Handbook. Editor-in-chief, Mansfield Merriman. Fourth edition, thoroughly revised and enlarged. Pp. 1955. (New York: John Wiley and Sons, Inc.; London: Chapman and Hall, Ltd., 1920.) Price 33*s*. net.

THE seventeen sections into which the volume is divided cover the whole field of civil engineering, together with mathematical tables, mechanics, physics, meteorology, and weights and measures. The fact that there is but little overlapping indicates that the work of the editor-in-chief has been done thoroughly. Books of this kind must contain the information in a condensed form; in the present volume, however, the condensation has not been carried to the extent which sometimes obtains, making the contents a mere dictionary. On the contrary, each of the sections is presented in a readable form, and is profusely illustrated. British practice differs in many respects from American, but there is much in common, and so much of value in the latter as to make it almost essential for students of civil engineering to have some knowledge of American practice. In no other single book that we have seen can so much information be obtained regarding the practice of civil engineering in the United States, and we can confidently recommend the book as a useful addition to the British civil engineer's library.

Letters to the Editor.

[*The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts intended for this or any other part of* NATURE. *No notice is taken of anonymous communications.*]

The British Association.

WE must first tender you our best thanks for having, at this time of inevitable reconstruction, opened your columns to a discussion which has been of great value in showing the general trend of opinion concerning the future of the British Association. We have had the benefit of letters from presidents and secretaries of Sections in addition to those printed in your columns, and now beg to offer a few general comments. But we hope we shall not be regarded as attempting thus to closure the debate and dismiss it from our minds; rather do we regard the period of discussion, and, we would add, of experiment, as just beginning. It was with the full consciousness that much new enterprise and revision of old procedure were desirable that we invited the recorders and local secretaries to a friendly meeting at Oxford in the spring of this year, and we hope to continue at regular intervals the discussions then initiated and helpfully continued in your columns. We need only add here that as it is an essential function of the British Association to consider and act upon all suggestions tending in any way to the advancement of science, we hope that if you receive further communications for which you cannot find room you will do us the favour to forward them for our consideration.

Proceeding to general comments, we would first express satisfaction that the undoubted smallness of the Cardiff meeting has not been allowed undue weight, even by critics who did not attend and could not appreciate the unusually keen and businesslike quality of the proceedings. Many causes contributory to its smallness are fairly obvious, and incidental to recovery from the war. The high cost of travel and of living (the predatory attitude adopted by one or two of the Cardiff hotels by anticipation was particularly unfortunate), and ultimately the local tram strike, all played their part, and it is to be feared that some of them may continue operative beyond the Cardiff meeting. This we can only endure, reminding those who formerly urged that we should discourage "camp followers" that it is not for them to complain if the attendance is less.

But the important criticisms and suggestions have had a more general character. Some of them (fortunately) cancel out, as when Sir Ray Lankester advocates very careful pre-arrangement and Sir Oliver Lodge the throwing over of the time-table in favour of impromptu discussion. Sometimes the cancelling is kindly done in the same letter, as when Prof. Armstrong, another *laudator temporis acti*, first sings the praises of two long official reigns and then advocates a rapid change of officials. Parenthetically, we may correct a misstatement in his letter; the General Committee did not "relegate to a committee the appointment of a new treasurer"; it only adopted the universal practice of appointing a committee to suggest names to the council. We have, however, no wish to curb permanently the picturesqueness of Prof. Armstrong's exhibitions of hitting out at all and sundry.

But some of the points on which there is division of opinion cannot be simply dismissed for that reason, and chief among them is the very important question of the nature of the Sectional proceedings. Should they be made more "popular"; and can this be done without repelling some of our most regular and most useful supporters?

Now we fully agree that it is a very important function of the British Association to attract the public and impress the nation, but even from this point of view alone it may not be the best method to cater directly for them. Where a frontal attack may fail, more insidious methods may succeed.

One excellent method of attracting the public is to make sure of attracting the nearest living representatives of men like Huxley and Lord Kelvin, who always attracted the public. Now Lord Kelvin used to declare (Sir Arthur Schuster kindly allows us to quote his authority for the fact) that he came to the meetings of the British Association "to hear what everybody else was doing"; and the curtailment of "specialist" papers might easily drive away the very people who ensure the success of the meeting, and in some Sections certainly would do so. We need scarcely labour this point, on which Prof. Eddington has already written much good sense; but we will just add that, in spite of the existence of "special societies" in London, there are many people who have no other chance to hear "what everybody is doing." Thus there are many who are not near enough to London to attend meetings regularly; there is the growing army of science schoolmasters and schoolmistresses who can attend meetings only in the summer holidays, when the London societies do not meet; and there are the numerous members who are interested in more than one Section. All these would benefit by meetings of the Sections even if they were conducted on *precisely* the lines of specialist societies. No one, however, advocates this extreme expedient; undoubtedly the Sectional proceedings should be of a different type, but in trying to secure one good object we must not drop another, and we have reason to believe that the Sectional officers are well aware of the needs and wishes of the members, and are doing their best to satisfy them.

Next, as regards the number of Sections. Without rehearsing all the arguments in detail, it may be accepted as common knowledge that there are weighty considerations on both sides. Who, then, is to adjudicate between them? The people concerned or others? It would seem an almost necessary admission that in each particular case there must be particular considerations which can be truly evaluated only by the people concerned (who must at the same time be impressed, as we all are, by the general undesirability of multiplying Sections), and that a persistent and reasonable application from them must be seriously considered and liberally met. It does not advance science to boycott the younger sciences. Thus at the present time the Physiological Section, having tried a Sub-Section of Psychology for several years, having debated the alternative of a full Section for Psychology in several assemblies, and having met at least one powerful objection, came before the General Committee at Cardiff with an unopposed recommendation for an independent Psychological Section. No dissentient voice was raised in Committee, and no suggestion of further postponement was made. The officers (and staff), on whom fall many of the disadvantages of the multiplication of Sections, scarcely feel that they can oppose such a motion if no other opposition is forthcoming, and if the council concurs it will be to give effect to a preponderance of reasoned opinion.

On the other hand, there was some years ago a movement for the subdivision of Section A. It was fully considered by the Section and rejected, which may be taken as evidence that the tendency to subdivision is not automatic, and therefore to be resisted automatically. The practical requirements of Sections have always varied widely, and the plan of leaving the decision chiefly to the people concerned has much to be said in its favour.

Proposals for joint meetings between Sections and for closer co-operation between groups of related Sections—Mathematics, Physics, and Engineering; Zoology, Botany, and Physiology; Geography and Anthropology; or between any of these (and especially Engineering or Agriculture) and Economics or Education—are not new; they were carefully examined afresh by the council shortly before the war, and the informal conference last spring led to fresh efforts in this direction. Sir William Pope's suggestion of a special advisory body to assist in planning each annual meeting could be realised at any time by joint action of the actual organising committees of the Sections, which are constituted at the close of each annual meeting, and are often consulted by the council in Sectional emergencies during the year.

The presentation of a retrospect of recent advances of knowledge in each Section or in practical applications of scientific work is again a matter for Sectional arrangement. Formerly there were formal reports of this kind drawn up by responsible committees and presented in print for discussion; latterly such a summary has often been the theme of a Sectional president's address, and sometimes of one of the public discourses or the citizens' lectures. It would be easy for related Sections to arrange for such papers in turn, so as to cover the whole field in a cycle of years. In this and similar matters of procedure the policy of the Association has been to give the fullest freedom to the Sectional officers to adopt or modify suggestions coming in general terms from the council or from our friendly critics, and the Sectional officers have every encouragement to exchange suggestions and experiences with one another and with the general officers. The council does its best to select for evening discourses and other general discussions men eminent in science and accomplished exponents of its broader aspects; and the general officers and local executive spare no pains to ensure that they have every facility and convenience that experience may suggest. Occasional failures are, perhaps, inevitable in so difficult an art as public lecturing; the Association may fairly claim to be judged by those discourses which are remembered through the years, and they are not a few.

The circumstances of different localities vary so much that it has been difficult, and would probably be unwise, to insist on close adherence to any one type of programme. Only those who attend habitually know how flexible our arrangements are, how greatly one annual meeting differs from another, or how much of what some of our most outspoken critics desire is actually being done informally in the intervals of a very elastic time-table.

The annual tenure of presidents and vice-presidents of Sections and of the local secretaries introduces a large element of "fresh blood," and many of the best expedients for economy of time and effort have been contributed by annual officers. Recorders and secretaries hold office rather longer, but they are usually chosen from the younger members, and pass on to other duties quite as rapidly as is consistent with the continuity of experience necessary for the smooth working of a meeting. We are making considerable demands on the time of both classes of officers throughout the year, and gratefully acknowledge their keen and loyal co-operation in working out the proposals which we put before them or which result from their own experience.

We are very sensible of the difficulty of including, even into an eight days' meeting, all the opportunities for discussion or for exposition of scientific work which various critics desire; and we would beg that the experience of the meetings in 1919 and 1920, which were, perforce, limited to five working days, may not be regarded as typical of what the Association is trying to accomplish since the war. From these abbreviated meetings, however, and from the varied war experiences of our keenest members, we believe that we have learned some economies of procedure; and as our Edinburgh hosts promise us a normal Wednesday-to-Wednesday meeting in 1921, we have some hope of realising much that has been offered so frankly by your correspondents for our guidance.

To make the annual meeting more widely known in advance and its purpose better understood, we rely, first, on the co-operation of the Press, and especially of scientific and technical periodicals such as NATURE.

There is, we believe, a larger public than ever before for clearly written and accurately informed articles on scientific subjects, and especially on the public services rendered by scientific research, and we should welcome every opportunity of assisting competent reporters and other journalists to obtain trustworthy information on such matters, both at the annual meeting and in advance. But it has been an increasing trouble in recent years that representatives of the Press do not always display either the preliminary knowledge or the journalistic training which might enable them to forecast intelligibly or to chronicle accurately the substance of a scientific discussion, however fully apprehended by other classes of "camp followers." Shorthand, for example, is an accomplishment which we have almost ceased to expect of a Pressman at a Sectional meeting.

We rely on the delegates from our numerous "corresponding societies" to keep those societies informed of the Association's work, to bring on their younger members to our meetings, and to assist the local secretaries in extending the area round the place of meeting from which a full attendance of scientific workers may be expected. The fulfilment of one of our primary functions—to bring provincial scientific workers into touch with specialists gathered from afar—must depend very much upon the corresponding societies of the neighbourhood.

Most of all, however, we look to our ordinary members, and especially to those who are brought into daily contact (as teachers or in business or industry) with younger or less highly trained colleagues or subordinates, to propagate that view of the value and interest of scientific work which alone makes and maintains the fellowship of workers each "doing something else," but able and keen to appreciate the discussions, whether arranged or impromptu, of scientific leaders and men of practical ability who come to our meetings with the same object in view—"to see what everybody else is doing." "Philosophy," it has been said, "begins in wonder," and intelligent wonder, if it is to work its full effect in an eight days' "parliament" or "picnic" of science, must be caught on the flitting wing by that member of ours who is lucky enough to be there when it rises.

J. L. MYRES.
H. H. TURNER.

New College, Oxford, October 24.

THE correspondence which has followed the leading article on "The British Association and National Life" in NATURE of September 16 must have been read with deep interest by everyone who cares for the advancement of science. Since in that article reference was made to some remarks of mine called forth by my experience of the Cardiff meeting, perhaps I may be allowed a few words on the subject.

It seems to me that most of your distinguished correspondents have missed the real point altogether. They have been too much concerned with discussing ways in which the scientific value of the meeting may be increased for the benefit of the scientific man taking part. From this point of view reminiscences, alterations of Sections, joint meetings, and the like are very interesting, and no doubt important. The members of the Association who visit a town have generally a good time, and if by internal reforms they can secure a better scientific holiday no one will grudge it to them. Some of the correspondents appear to think that this should be, if not the sole, at any rate the chief object of the meetings. One of them practically warns the general public off "matters which they do not understand."

The purpose of my original remarks—and, if I am not mistaken, of your article also—was to emphasise the precisely opposite opinion, namely, that whilst the Association served the cause of the advancement of science by bringing workers in it together in circumstances favourable to discussion both formal and informal, yet it also had the duty of bringing before the general public the methods and results of scientific work. There is a cumulative effect here. None of your correspondents can deny that the general public pays us to conduct scientific research. Whether that payment is direct from the rates and taxes or indirect from gifts and bequests does not matter. The public pays, and scientific men are eternally asking for more. The public has, therefore, a right to know what it is getting for its money. Further, if the word "advancement" means anything, and if science has an object at all, what other object can that be than that of making the world a better place to live in? and how can it be advanced unless the results of its progress are made known to the people who are intended to profit by them? Scientific work is either a selfish amusement (as some of your correspondents seem to think) or it is a service of public utility. If it is a service of public utility, then the more the public realises how much it owes to scientific work, the more will the public be disposed to provide money for that work, and, consequently, the more work will be done and the more the public will be benefited. This is the cumulative effect which would follow from an ably directed scientific propaganda.

Science might well consider that favourite text: "Go ye therefore, and teach all nations, baptizing them . . ." The British Association could be, and ought to be, a mighty engine for this purpose. And be it noted that the advice contained in this text is not only to preach, but also to baptise the converts, which is to bring them into the charmed circle themselves. The volumes of NATURE these fifty years are a record of scientific missionary work. They are full of finely worded appeals regarding the neglect of science, the need for money, the improvement of education, and so forth. But these sermons are not even preached to the converted; they are preached to the priests. What scientific heathen ever reads NATURE?

These considerations are on the high moral plane of duty—the duty which scientific men owe to the nation. Those of your correspondents who think that they are weird, yet beautiful, rare, and expensive, orchids kept in the public hothouses will never agree that they ought to be potatoes and show a good crop. But they will not be so satisfied with the scheme of things if the heating supply fails, and for this reason I should like to descend from the moral plane to the base one of money and to refer to a few facts. These facts would not be mentioned here if it had not already been necessary to state them very publicly in the district that had the honour of entertaining the Association at the recent meeting.

The Cardiff meeting cost the local committee about 2500*l*., and, in spite of all efforts, only about 1800*l*. has so far been forthcoming to meet this expenditure. I would ask your correspondents to consider the reason for this deficit. Cardiff is a wealthy city, and the "docksmen" are well known for their generosity. Large sums of money have been collected recently for such purposes as horse shows, flower shows, and missionary societies from people who mostly knew and cared as much about horses and flowers and cannibals as they do about Einstein. I think the reason is that they understood what these things were for, and they do not know what the British Association is for, because the Association has not seen fit to enlighten them. Another practical point is this. Owing to the decreased purchasing power of money the expenses of the meeting are necessarily two or three times what they were before the war, but the Mæcenas who gave a cheque for fifty guineas before the war does not now give you one hundred and twenty guineas; he still gives fifty.

Your correspondents who are preoccupied with that part of the Association's activities which concerns the meetings and discussions of scientific workers among themselves might perhaps indicate why, if scientific discussion is the be-all and end-all of the Association, the Association should wander all over the country, and even over the Empire, from year to year. Surely it would be more efficient and more convenient to have the annual meeting in the one place in which the Association prides itself on never having met—London.